Town of Bedford, Massachusetts

CITIZEN INVENTORY OF PUBLIC TREES

FIELD VOLUNTEER GUIDE

BEDFORD ARBOR RESOURCE COMMITTEE
2014

Why do a town tree inventory?

An inventory is the basis of a well-considered strategic plan for maintaining Bedford's beloved town-owned public trees. But, Bedford has never taken an inventory of the town-owned trees, primarily because of the enormous cost of a professional comprehensive inventory. The benefits of a citizen inventory are:

- The information gathered will be used to create a strategic plan for Bedford's trees, including removal, maintenance pest control and replanting.
- Citizens gain knowledge and appreciation of this resource and its value to public health, energy conservation, storm water management, and pollution mitigation.
- The inventory will help the town and state track and manage progression of diseases and pests.
- It's an opportunity to spend some time outside with your friends and neighbors having FUN!

How will the inventory work?

- **Management**. The Bedford Arbor Resources Committee (BARC) is working closely with the town Department of Public Works (DPW) and the Massachusetts Department of Conservation and Recreation (DCR) to organize and manage the inventory.
- **Software**. We are using software offered free of charge to Massachusetts communities through the DCR; the name of the software is iTree Streets.
- **Zones**. The town is divided up into zones, with each zone having a "captain". The captain has had training from the DCR on use of the software, tree identification and pest, environmental and other factors covered by the inventory.
- **Time Commitment**. Spend as little or as much time as you can spare. The inventory will take place over the course of a single day per zone.
- **Tree Knowledge**. Each citizen volunteer will be briefed on tree and pest identification and tree condition just prior to undertaking the inventory of a limited area of the town. Briefings will begin at 9am in each zone or as agreed with the captain. Volunteers will receive a map showing town-owned land in each zone.
- **Field Teams**. Teams consist of 3-4 people: a recorder, 1-2 measurers and tree condition evaluator. Roles can be switched among team members over the course of the day.
- **Data Volunteers**. If you can't participate in the field, we also need people to help upload data.
- **Upload**. The captain will collect hand-written sheets for manual upload by other volunteers.

How to get started/What you need

1. **Volunteer**. Volunteers must be at least 16 years old or work on a team with a parent or other responsible adult.
2. **Measuring Tape**. We'll be measuring the distance around tree trunks (circumference) at 4 ½ feet from the ground. The tape should be flexible enough to wrap around a tree and be at least 10 feet long.
3. **GPS/GIS Device**. If you have a GPS-enabled device such as a Smartphone or car-GPS, bring it along.
4. **Binoculars**. Some of the evidence of pests or damage may be high up in a tree. Bring along a pair of binoculars, if you have them.
5. **Tree Guide**. We hope to identify tree families during this inventory and an identification guide is included in this guide. If you have a book or software, bring it along for more information.

Your Safety

Keep in mind that cars will be using the streets where the inventory will take place. If some trees are in locations that do not seem safe, then do not hesitate to skip those trees. Please be sure to note the areas that had to be omitted.

Specifics of Inventory Form

- **Address**. Use closest address, if available. If you are inventorying a park, trail or other non-street area, ask your team captain. Do not inventory trees on private property.
- **Tree Number**. For each address, number trees beginning with "1" from right to left with your back to the street.
- **Site Type**. Circle the site type that best describes the location.
- **GPS Latitude(N)/GPS Longitude(W)**. Use your Smartphone or other GPS device to determine the location of the tree or draw the location on the map. Include 6 digits to the right of the decimal, if available. If you don't have decimal on your device, include degrees, minutes and seconds, for example, 71º15'29" with punctuation.
- **Species**. Choose a tree species from the attached guide, or from your own knowledge of trees. Be as specific and accurate as you can be without guessing. If you aren't sure of the exact species, put a generic value in, like "Deciduous-Other" for a tree that loses its leaves in the fall.
- **Inches Around**. We are not using diameter as this requires specialized equipment. Measure the distance around the tree at 4 ½ feet from the ground.
- **Condition of Wood and Condition of Foliage**. Circle the condition described on pages 5 and 6. There should always be an entry for wood and foliage condition. Note which type of tree or foliage stress is most prevalent, if any, in the last 2 columns of the inventory form.
- **Notes**. If there is something about the condition or location of the tree to which you would like to draw the DPW's attention, please note it here. Use especially for public safety issues.
- **Pavement Conflicts**. If the tree's roots are pushing up the sidewalk and/or the street by more than 1", please circle the appropriate entry.
- **Wire Conflicts**. If the tree is growing underneath or beside utility wires, please note if there is a current conflict or if the tree could eventually grow to create a conflict if it isn't pruned.
- **Evidence of Pests**. Using the attached guide, look for evidence of pests. If more than one pest, list the most prevalent.
- **Tree Stress**. Using the attached guide, look for evidence of disease or damage to the tree. If more than one condition, circle the worst condition. Leave blank if in good condition.
- **Foliage Stress**. Using the attached guide, look for evidence of disease or stress reflected in the leaves. If more than one condition, circle the worst condition. Leave blank if in good condition.

Emerald Ash Borer


Any evidence of Emerald Ash Borer or Long-Horned Asian Beetle should classify the tree as Needs Attention.


Long-Horned Asian Beetle



Also look for sawdust at the base of the tree and shallow nests in the bark for egg-laying. Prefer Ash, Birch, Willow, Plane/Sycamore, Poplar, Horse Chestnut, Elm, Maple,

Other Insects

Note any excessive presence caterpillars, beetles, aphids, scale, carpenter ants, or egg masses. Also note any evidence of insects attacking the tree such as sawdust, bark loss, D-shaped, circle, or oval exit holes.

WOOD CONDITION AND TREE STRESS IDENTIFICATION GUIDE

Crown Dieback Dying back of branches and branch tips in the upper and outer portions of the tree crown.	**Compromised Roots** Flooding area, compaction from heavy traffic, or mounded mulch.	**Fungus/Wood Rot** Often a sign of dampness and rot within the wood.	**Damaged/Decayed Trunk** Cracks on tree from frost, lightning strike or other weather-related or human-caused injuries.
			
Good Condition: <10% of tree affected	**Good Condition:** Rarely muddy, mulch below root flare, low foot traffic below tree canopy	**Good Condition:** No fungus evident, lichen and moss OK	**Good Condition:** Superficial defects only
Fair Condition: 10-30% affected	**Fair Condition:** Seasonal flooding, mounded mulch, or heavy foot traffic		**Fair Condition:** Defect affecting <50% trunk
Needs Attention: >30% affected, pervasive	**Needs Attention:** Roots usually under water	**Needs Attention:** Fungus evident or other clear sign of wood rot	**Needs Attention:** Defect affecting 50% of trunk or making it likely to fall

How to code wood and foliage condition on the inventory form:

- Good: No “Fair” or “Needs Attention” condition factors present
- Fair: Any “Fair” condition factors, with no “Needs Attention” factors
- Attn: Any “Needs Attention” condition factors or potential safety issue

FOLIAGE CONDITION AND STRESS IDENTIFICATION GUIDE

Defoliation This may include holes in leaves or complete stripping of leaves by insects.	**Insect Leaf Mining** Leaf mining is often recognized by the serpentine pattern of feeding beneath the leaf surface as insects live or feed within a leaf.	**Mid-Rib Feeding** This is a specific symptom that implicates the Asian long-horned beetle. Please look closely.	**Discolored Foliage** Includes mottling, scorching, blistering or curling, white coating, black coating, yellowing/browning before autumn, spots, speckles, or abnormal bumps.
	 		
Good Condition: <10% of leaves or needles affected	**Good Condition:** <10% of leaves or needles affected	**Good Condition:** No evidence of mid-rib feeding	**Good Condition:** <10% of leaves or needles affected
Fair Condition: 10-30% of leaves or needles affected	**Fair Condition:** 10-30% of leaves or needles affected		**Fair Condition:** 10-30% of leaves or needles show any discoloration
Needs Attention: >30% of leaves or needles affected, pervasive	**Needs Attention:** >30% of leaves or needles affected, pervasive	**Needs Attention:** Any leaf with mid-rib mining is evidence of Asian long-horned beetle.	**Needs Attention:** >30% of leaves or needles affected, pervasive

Common Bedford Trees

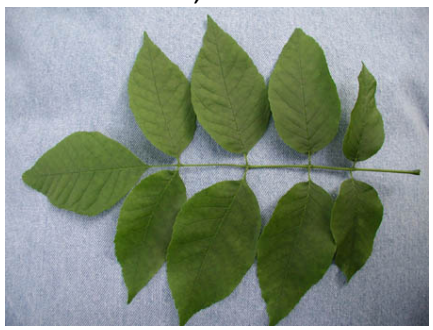
Alder/Birch 7
Ash 7
Basswood/Linden 7
Beech 8
Catalpa 8
Cottonwood 8
Elm 8
Fruit 9
Hawthorn/Mulberry 9
Horse Chestnut 9
Locust 9
Maple 10
Oak 10
Ornamental 10
Pine – Long Needle 10
Pine – Short Needle 11
Poplar/Tulip Tree 11
Serviceberry 11
Redbud 11
Sassafras 12
Sycamore 12
Sweetgum 12
Walnut/ Hickory 12

Alder/Birch

The leaves are alternate, simple, and serrated. The catkins often appear before the leaves. Birches have peeling bark.

Ash

Look for opposite branches and 5-13 blades opposite one another along leaf stalk, smooth or toothed edges, single copter seed



Basswood/Linden

Heart-shaped, simple, alternate and finely toothed leaves. Vertically striated, grooved and dark bark. Bright yellow, fragrant flowers

Beech

Heavy shade trees with tall, stout trunks and smooth silver-grey bark.

Catalpa

Large, heart-shaped leaves with white or yellow flowers bunches

Cottonwood

Coarse-toothed leaves, 1.5”-4” long. Shake in the slightest wind.

Elm

2-6” leaves arranged alternately on the stem

Fruit

Such as Apple, Crab Apple, Pear. Sweet-smelling flowers attract bees in spring.


Hawthorn or Mulberry

Flowers have an unpleasant scent. Leaves with finely serrated edges may be glossy and sometimes grow in small clusters along the branch, sharing the space with woody thorns


Horse Chestnut

The flowers are white, showy and may have small reddish spots. Leaves 4-6" long.

Locust

The leaves have a delicate, feathery appearance with 15 to 90 leaflets. Thornless variety popular for street trees.

Maple

Look for clusters of little green flowers in spring.

Oak

Many varieties, but all have many-lobed leaves that are spirally arranged on the branches.

Ornamental

Examples are Dogwood and Magnolia

Pine - Long-Needle

Long-needle, or clusters of needles coming from a single spot on a twig instead of individually attached

TREE IDENTIFICATION GUIDE

Pine - Short-Needle Evergreen with short needles such as Fir, Spruce or Cedar  	**Poplar/ Tulip Tree** Tulip-shaped flowers are greenish-yellow in color and emerge near the top of the tree. Tallest tree in Eastern U.S.A. 
Serviceberry Alternating leaves with straight veins, pointed tips and serrated edges. Clusters of white blossoms in spring. 	**Redbud** Pink to lavender blooms in early spring. Small tree.  

TREE IDENTIFICATION GUIDE

Sassafras

Leaves may be oval, shaped like a mitten or possess three separate lobes. All 3 shapes can occur on a single branch. Their lengths vary from 4 to 7 inches

Sycamore

Look for splotchy peeling light-colored bark. Leaves 4-9”

Sweetgum

Leaves have five (but sometimes three or seven) sharply pointed lobes.

Walnut/Hickory

The leaves are alternate, odd-pinnate with 15–23 leaflets with the largest leaflets located in the center. The male flowers are in drooping catkins.

TREE INVENTORY FORM

Address	Tree #	Site Type	GPS Latitude(N)	GPS Long.(W)	Species or "stump"	Inches Around	Wood Condition	Foliage Condition	Notes	Pavement Conflict > 1"	Potential Wire Conflict	Evidence of Pests	Tree Stress (if any)	Foliage Stress (if any)
		Roadside Median Bike Path Trailside Other					Good Fair Attn	Good Fair Attn		Sidewalk Road Both Neither	Conflict Not yet No wire No conflict	EAB ALHB Other None	Dieback Roots Rot Crack	Defoliat. Mining ALHB Discolor
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